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REMARKS/ARGUMENTS

Claims 1-18 and 31-36 are pending in the case. Of these, claims 6-8, 15, and 32 were deemed allowable, while claims 1-5, 9-14, 16-18, 31, and 33-36 were rejected as being obvious over U.S. Pat. No. 6,261,850 to Marsh ("Marsh") in view of Applicant's previous admissions. Claim 6 has been re-written in independent form thereby making it, along with its allowable dependent claims 7 and 8, in condition for allowance. Likewise, claims 15 and 32 have been re-written in independent form thereby placing them in condition for allowance as well.

Claim Rejections

Claims 1-5, 9-14, 16-18, 31, and 33-36 were rejected as being obvious over Marsh in view of Applicants' admissions. Applicant traverses these rejections because in contrast to the Examiner's contention, Marsh does not teach a method that uses one or more precursors including a conductive and a non-conductive precursor. All of the current claims (either directly or through their independent base claim) include this limitation, i.e., both a conductive and a non-conductive precursor. As will be shown, Marsh not only doesn't include this limitation, but further it teaches away from the inclusion of a non-conductive precursor because its entire purpose is to provide a deposition of a conductive material that has reduced impurities (which are non-conductive) and thereby deposit a conductor with high conductivity. Thus, Applicants' method of purposefully including a non-conductive precursor material flies directly in the face of Marsh. These points are described in more detail in the following paragraphs.

The following excerpts from Marsh summarize its approach for depositing a highly conductive material.

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For microelectronic applications, it is often desirable to deposit layers having high conductivity, which generally means the layer should contain minimal carbon and oxygen contaminants. However, one problem of a CVD deposited layer formed from an organometallic precursor is incorporation of residual carbon from the hydrocarbon portion of the precursor. (Marsh, col. 2, ll. 3-9).

Therefore, what is needed are methods for forming substantially carbon-free and/or substantially oxygen-free conductive material useful for semiconductor applications. For example, such a conductive material, e.g., low carbon and/or low oxygen platinum, formed using focused beam techniques may be used as a conductive material for line repair or in the formation of patterns in the fabrication of semiconductor devices, e.g., capacitor structures, interconnects, contacts, etc. (Marsh, col. 2, ll. 35-40).

Surprisingly, the resulting platinum layer is formed such that it is substantially carbon-free and substantially oxygen-free when formation takes place in the presence of the oxygen stream. By direct writing of platinum in an oxygen atmosphere, particularly in the presence of a stream of oxygen as described herein, a low carbon and/or low oxygen platinum material is formed. (Marsh, col. 9, ll. 24-30).

Thus, it can be seen from this and from the rest of Marsh that its primary, if not sole, objective is to provide an improved method for depositing conductive materials with high conductivity, i.e., very low resistivity. In order to achieve this, it provides a reactive gas stream 40 (e.g., oxygen) from gas source 18, along with the conductive precursor from the precursor source 14. The reactive gas promotes the deposition and purification (from oxygen and carbon contaminants) of the conductive precursor. Thus, the reactive gas serves to make the conductive precursor even more conductive. Accordingly, adding a non-conductive precursor, such as is claimed by Applicants, would work directly against Marsh's approach of eliminating non-conductive elements.

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Citing Marsh at col. 2, ll. 44-65, the Examiner contends that Marsh teaches the use of two precursor gasses including one that is conductive (platinum) and the other that is non-conductive (presumably referring to the oxygen gas for the non-conductive precursor). However, this is simply not the case. Nowhere does Marsh teach the use of a non-conductive precursor. As pointed out above, the oxygen gas is not a precursor (conductive or non-conductive) but rather is a reactive gas used to purify the deposition of Marsh's organometallic conductive precursor. Thus, Marsh fails to teach or even suggest Applicant's use of both a non-conductive and conductive precursor. In fact, it teaches directly against this approach. Accordingly, Marsh cannot make obvious Applicants claims, and the rejections should be withdrawn.

Respectfully submitted,

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